WRNO Worldwide Shortwave Radio
Can this station be saved?

By Dan Brown

WRNO, the ground-breaking shortwave station from New Orleans, has been off the air for about ten years, though it came under new ownership in 2001. More than year ago, it was announced that WRNO would begin broadcasting soon. When the signal still did not return, many in the radio hobby anticipated an admission of defeat. But don't give up on WRNO yet!

Now owned by the Good News World Outreach group based in Fort Worth, Texas, WRNO Worldwide Shortwave Radio is key to Chairman of the Board Dr. Robert Mawire's vision to promote global evangelism via shortwave. Whenever it does come on the air, WRNO will transmit on 15420 kHz during the daytime and 7355 or 7395 kHz in the evenings. Their main target audiences are the Arabic-speaking populations worldwide, including the Middle East and Europe.

The background behind this difficult road to reviving WRNO's signal makes an interesting story.

My interest

My interest in WRNO Worldwide began when I was a young shortwave listener living in New Orleans, where I paid close attention to the creation in the early 1980s of the first commercial US shortwave station, WRNO Worldwide, which beamed to a domestic audience. I found the idea of a local shortwave station exciting.

I moved to Boston in 1987 (I even remember listening to the station while traveling on the New Jersey Turnpike when I was moving) and then did not hear the station on the air for many years.

My current interest was rekindled while on vacation in New Orleans in July of 2006. I had not heard WRNO on the air for some years and wondered if the transmitter site was still in use. I tuned a portable shortwave radio across the bands and did not hear any local signal.

One day a ham radio friend Bob K5IQ drove me to the WRNO transmitter site on the west bank area of New Orleans, where we discovered some damage to the transmitter building from hurricane winds. No one was home, and the feed line to the antenna was laying on the ground. I knew they could not be on the air.

Once I got back to Boston, I looked on the Internet for any new information on WRNO Worldwide. There I discovered the Good News World Outreach group's web site and found out the new ownership was based in Fort Worth, Texas.

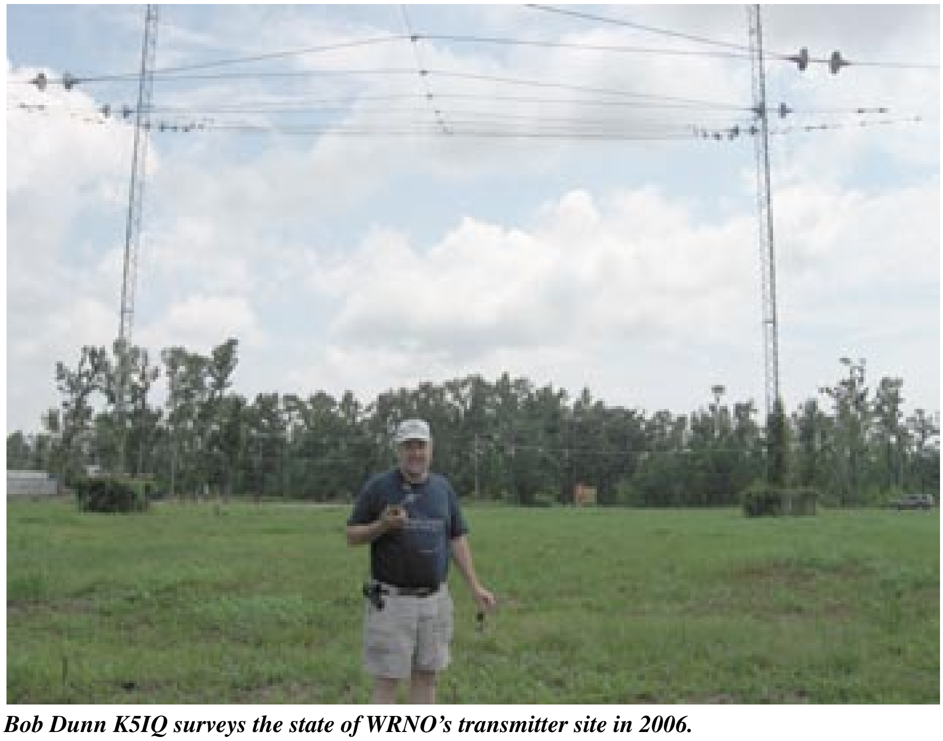
I also discovered a news story that aired July 16th, 2006, by Tiani Jones of KTVT-TV (CBS-11) in Fort Worth, stating WRNO was "currently broadcasting a message of peace to the Middle East." Having viewed the transmitter site and antenna, I knew they could not be on the air! Ironically, a week later, WRNO Worldwide's web site was updated with new information for the first time in several years.

So, I called the owner Dr. Mawire and he confirmed they were not on the air, but said they had plans of going on the air very soon. He gave me the contact information for the two engineers involved with the project, who gave me more of the new and the old WRNO Worldwide story. First, the old...

WRNO's early development

Because I grew up in New Orleans and had been interested in broadcasting from an early age, I was familiar with the fact that Joseph Costello had started a small group of FM radio stations in southeast Louisiana, beginning with WRNO-FM (which originally stood for "Westbank Radio New Orleans") in 1967. Their on air slogan was "We are the Rock of New Orleans."

This FM station was popular with the local crowd (including me), and Joe soon purchased other stations in the area, including KXOR-



Bob Dunn K5IQ surveys the state of WRNO's transmitter site in 2006.

Contrary to the story by KTVT-TV, this station was definitely not on the air in July 2006!

FM in Thibodaux, LA. With the acquisition of other FM stations, Gulf South Broadcasters was formed. In speaking with a past engineer of the FM station, I learned that Mr. Costello, who had become a millionaire and was also a ham radio operator, wanted a privately owned, domestic rock and roll shortwave outlet and had the money to start the venture. However, the FCC only allowed US based broadcasters to beam outside the country at that time.

In the late 1970s Joe Costello fought the FCC and won a precedent-setting decision that gave him the right to obtain a license to be the first domestic commercial shortwave station with a US market. Once the FCC gave him a license, Joe started building his shortwave station. This change in the FCC licensing rules opened up the gate for stations such as KUSW, WWCR, WBCQ, and many others to later be created and to broadcast commercially from and for the US. Previously, all domestic shortwave stations (such as the VOA, WYFR, WINB and others) were non-commercial and had their target audiences in other countries.

Joe Costello wanted a North American audience and he expected to make a lot of money playing rock music and selling such things as Coca-Cola and fast food. He could now do so.

Learning of the construction permit in the early 1980s, I waited for a "big-time shortwave station" to go on the air in my town. Well, WRNO finally went on the air in 1982 and beamed its signal to the north and northeast. Their main audience was the United States and Canada, but the fact that WRNO reached other countries was an added benefit. Initially their programming consisted of then-current album rock music, local jazz music shows, the New Orleans Saints, and Louisiana State University football games. WRNO also had a studio in the 1984 New Orleans World's Fair that fed Joe's FM and shortwave stations.

However, listening to WRNO's music on shortwave was often a disappointing and painful experience to the ears with the limited audio bandwidth, distortion, interference and selective fading of shortwave.

Later, as money did not quite "roll in" as he had expected, Joe ran out of the funds to pay for independent programming to be created for the shortwave outlet. He then simulcasted his local WRNO-FM station on shortwave, allowing distant listeners to hear local DJ talent and cheesy commercials for bars and concerts that someone far away could not take advantage of. Eventually, Joe sold air time to religious broadcasters and pretty much anyone willing to pay for the air time. Any real format was gone.

As Joe was extremely cheap with his money, maintenance of the Harris 100kW transmitter was avoided, and the transmitter, which initially did a great job and was power efficient, eventually became no longer usable because of its rundown condition.

Joe then purchased a 50kW transmitter from a manufacturer that had never made a dual band shortwave transmitter until Joe placed the first and only order. The manufacturing company, CCA, had a very difficult time in delivering a fully working transmitter, and the manufacturer's engineers were still trying to get the bugs out after it was delivered.

Because of increased competition on FM radio, as well as the losses incurred in running the shortwave station, Mr. Costello eventually had to sell WRNO-FM, his flagship station in the Gulf South Broadcasters group. In 1994, WRNO-FM was sold to EZ communications and has changed hands many times since then. The FM station is now a talk station owned by

I learned a lot from the engineers I interviewed, Larry Thom and Chris Baum. The new owners have installed a new Elcor 50kW plate modulated transmitter which was built in Costa Rica. They will be using the existing TCI Log Periodic Antenna, which provides about 9dB gain to the north and northeast and which hopefully will reach Europe and the Middle East.

Feeding the transmitter will be a T1 phone line (or a satellite link) providing audio delivery from their studio in Fort Worth. The audio will be processed by the existing Orban Optimod HF audio processor at the transmitter, one of the few items still working from the original days.

The new studio in Texas is equipped with an Audioarts console and Scott Systems automation.

As hurricane Cindy took down the feed line last year, some antenna feed line parts were made by TCI and installed by Larry Thom. Recently, a new transmitter ventilation system was installed and a fence surrounding the property is planned for RF safety.

Being cheap...

Larry Thom has been working as a transmitter engineer for WRNO for about 15 years, and has been through all three transmitters at the site. The original Harris SW-100 transmitter died due to little preventive maintenance; Joe Costello would not spend the money to keep the transmitter in tip-top shape. According to Larry, if half the money it took to buy the new CCA transmitter had been spent on the old Harris transmitter, the Harris would have given much more life.

To save money, Joe also had the transmitter operator distill their own transmitter cooling water, and often did not run the full 100kW that the license required. Joe also did not own or believe in a test dummy load. This led to difficulty in testing the main transmitter while the backup was on.

When Larry was first asked to work on the Harris transmitter, it was only making 6kW out of the normal 100kW. Larry and fellow engineer Danny Miller worked for days on it, got it to a power level of 60kW, then later to the full 100kW. According to Larry, the transmitter was not dependable, since the cooling system not being kept clean. The dirt in the cooling system caused arcing of the 30 kilovolt power supply, causing premature wear in the Teflon hoses in the Harris transmitter. Instead of buying new hoses, Larry was forced to cut back and re-use the old hoses.

Harris also had determined there were design and headroom issues with the original set of 4CV50,000 tubes. Harris offered an upgrade kit using the 4CV100,000 tube, but Joe was reluctant to spend the money to upgrade the transmitter to handle these new tubes. So, as the Harris was not reliable, a new transmitter was needed.

Larry wanted a replacement Continental transmitter, but never got it. Again, Joe saves money.....

We never made a big shortwave transmitter before!

According to Larry, CCA gave Joe $150,000 for the old Harris and sold him a transmitter before it was built. CCA's experience was more in AM and FM transmitters, but they had built 10kW shortwave transmitters in the past for WWV. They had not built a dual band 50kW shortwave transmitter before, and came up with a design that had 7 MHz and 15 MHz RF cabinets, a common power supply, and a common modulator.

This transmitter, which was really serial number 1, was finished on site. They had much difficulty in getting it to work properly at full power. A major mistake in the process was that the new CCA was delivered as a 50 ohm output transmitter, but WRNO needed a 75 ohm output, as they already had a Kintronics 75 ohm fixed frequency balun to convert the signal to the 300 ohm open wire line that the TCI antenna used. So, CCA modified the completed transmitter on site to match the balun, and also modified the balun for variable frequency operation – a very difficult assignment.

Smoke on the Bayou

One day the FCC called and complained to the WRNO receptionist about their signal interfering with other stations. The transmitter was operating abnormally. Soon the transmitter operator called Larry and said smoke was coming out of the CCA transmitter. The operator turned the main breaker off, but smoke still came out.

When Larry drove out to the site, he discovered the transmitter power supply and control cabinet were totally smoked and wiring harnesses had vaporized. There was soot on most parts of the transmitter. The important control cabinet was a total loss. The modulator high voltage wires had burned up and the RF cabinets had soot damage.

Naturally, with that much damage, even if it was repaired, the integrity would be questionable. So the new owners elected to purchase an Elcor transmitter. As the old balun also did not really work well, Larry bought a TCI 150kW balun for the new Elcor.

Backing up

In the Joe Costello days, the backup transmitters were ham radio style Johnson Viking 2's and Valiant transmitters (a whopping 120 watts!) originally made for ham radio service in the 1950s, as well as a military surplus T368 transmitter (even better at 400 watts!).

Today, Larry has a backup ham style radio – a Globe King 500D Sn#1 which can make 300 watts. After buying the Globe King, of which only a few were made, he had to modify it extensively just to get it to work. They had previously tried Henry RF power amplifiers without full success.

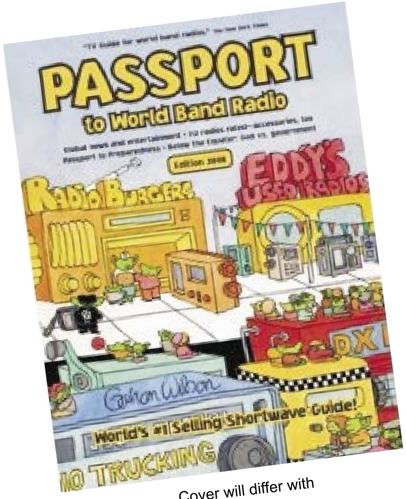
Clear Channel, but seems to have little local appeal today.

In April of 1997, Mr. Costello died at age 56 of complications from diabetes. His death led to family lawsuits over his estate which included the shortwave outlet. His family was not in the will! Joe had stipulated his entire estate be given to Loyola University in New Orleans, where he had attended college (he also attended Harvard Business School). All of Joe's stations went up for auction and the proceeds were given to Loyola.

While WRNO Worldwide was up for sale, it eventually left the air when the CCA transmitter burned up (see the technical sidebar story). Because of this major failure, the price of the station was drastically reduced. In 2001 the Good News World Outreach group purchased WRNO Worldwide for one half of the asking price.

The new owners now intend to use the facility to broadcast religious programming. This is totally the opposite of what original founder Joe Costello had planned for!

Dr. Mawire seated in the new studio in Forth Worth, Texas.



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The Good News (and the bad)

From the web site (**www.wrnoworldwide.org**) WRNO's new mission is:

"To take the Whole Gospel to the Whole World in This Generation. As an international short wave radio station, WRNO Worldwide is transforming the world through the airwaves as it launches its worldwide mission. This vital mission is to reach 4 billion listeners, through 1.6 billion short wave radios, located all over the world with the gospel of Jesus Christ. With frequencies located at the 'top of the dial,' WRNO Worldwide is positioned to transmit the full spectrum of Christian educational materials 24 hours a day, 7 days a week in multiple languages, especially to countries with restricted access to the gospel."

The Good News Outreach group's purchase of the station included: the license to broadcast commercially on three frequencies, a transmitter site with a dead transmitter, and a good TCI log periodic antenna. Dr. Mawire (prounounced *mah-wir-ray*, not *may-wire*) immediately began raising money for a new transmitter and had a modern studio with full automation built in Fort Worth, Texas. All this effort took a few years.

The group kept FCC STA's (Special Temporary Authorities) extended while money was being raised and a new transmitter purchased and installed. Because of RF radiation laws and the fact that a new residential neighborhood has grown up immediately to the rear of the transmitter site since it was built, their new license is for the use of 50kW of power instead of the original 100kW power level.

Hurricane delays

In 2005, Dr. Mawire had almost completed the installation of a new 50kW Elcor transmitter, when hurricane Cindy hit in July, bringing down the feed line to the antenna. A month later, hurricane Katrina arrived in August, damaging the transmitter building slightly because of a falling tree. Fortunately, the new Elcor transmitter was not damaged, and the TCI antenna was largely intact. But final transmitter installation and testing would now be delayed for over a year.

Hours and Watt-Hours

In June of 2005, WRNO Worldwide obtained about 3,000 hours of recorded Christian testimonies, Bible teachings, and music recorded in Arabic. Their studio in Fort Worth can operate un-manned for weeks via automation if needed. Most of their air time will be in English, but two to three hours per day will be in Arabic. As needed, they will broker time and broadcast commercial shows.

A new problem emerged when Louisiana electric supplier Entergy Corporation went into bankruptcy due to their losing 60% of their customers after Hurricane Katrina devastated the area; Entergy wants to increase its electricity fees by 25% or more. This may have a major impact on WRNO's transmitter operation, as high power transmitters use a lot of electricity. The Good News Outreach group may not be able to afford to operate their transmitter full time as they had hoped.

On the air yet?

After more than a year since I first contacted them, WRNO is not on the air yet. Speaking recently with Janet Mawire of WRNO Worldwide, I learned that they plan on returning to the airwaves by the end of this year. They initially will broadcast for 8 hours per day split into 4 hours per day on their day frequency and 4 hours on one of their two night frequencies. Their daytime frequency will be 15420 kHz and the night time frequency will be either 7355 kHz or 7395 kHz.

At the beginning of each hour, news updates will be given in English, then programming in English or Arabic will follow. As financial resources grow, they hope to expand to 24 hours operation. In planning for the future, they are studying investing in new technology such as the internet, podcasting and television. They are always looking for cash donations. They even take Visa and MasterCard on their web site!

The return of WRNO Worldwide is possibly a bright and interesting future for this once ground-breaking, commercial rock and roll station from hurricane-battered New Orleans. Dr. Mawire and the Good News World Outreach group are providing a strong investment into the station and seem to be doing things correctly, albeit slowly. I am hoping for the best and will be tuning my shortwave receiver to hear the new signal from New Orleans once again, even though it's minus the rock and roll music.

REFERENCES:

WRNO Worldwide web site www.wrnoworldwide.org/

Frankie Heintz's web site: http://members.aol.com/Radio15420/JMC.html

Joe Costello obituary, *Times Picayune*, 04/26/1997

www.fcc.gov/ib/sand/neg/hf_web/xwrno21.txt

Dr. Robert and Janet Mawire
Good News World Outreach
Radio Station WRNO
5601 Bridge Street, 3rd Floor
Fort Worth, TX 76112
817.850.9990 Office
817.850.9994 Fax

About the Author:

Born and raised in New Orleans, Dan Brown is an engineer with Viacom Boston television stations WBZ, WSBK and WLWC. Mr. Brown is a member of the Society of Broadcast Engineers and is an avid ham and SWL, enjoys vintage radio, and is the President of the Wellesley Amateur Radio Society. Dan now lives in Natick, MA, and can be reached at W1DAN@arrl.net.

The proximity of a new housing development near the transmitting site limits WRNO's new license to 50kW of power.